REMARKS

Claims 1-15 are pending in the present patent application.

The abstract was objected to regarding matters of form. The objection to the specification is overcome by the amended abstract submitted herewith. Accordingly, reconsideration and withdrawal of the objection to the abstract is respectfully requested.

Claims 1-15 were objected to under 35 USC 102(b) as being anticipated by Lindsay et al., U.S. patent no. 5,495,109 (hereinafter Lindsay). This rejection is traversed.

Regarding the rejection of claim 1, the Office states that Lindsay discloses all of the elements of Applicant's claim 1. It is noted that Applicant's claim 1 states, in relevant part,

> A method for measuring an electrical characteristic on a molecular scale, said method comprising the steps of:
>
> probing a molecular layer using atomic force microscopy (AFM) having a cantilever including a large contact area probe tip by controlling the force applied to said probe tip (emphasis added)

Claim 8, directed to a system for measuring an electrical characteristic on a molecular scale, is similar to claim 1. Clearly Applicant claims a cantilever including a large contact area probe tip. The claimed large contact area probe tip is in contrast to the conventional probe tip used in conventional SPM and AFM, techniques having a small radius or sharp probe tip.

As stated in the specification, "[A]n important aspect of the present invention is that the AFM cantilever has a relatively large contact area or radius tip, as compared to the surface defects of the molecular surface being measured. The large contact area of the probe tip is in contrast to the small radius probe tips used in conventional AFM. The large contact area of the probe tip distributes the applied

force to a greater surface area of the molecular surface being tested. Thus, penetration, and disruption, of the molecular layer being measured is minimized, thereby enabling an accurate measurement of the intrinsic electrical characteristics thereof." (See the specification, page 4, line 17-24). That is, Applicant recognized a problem in measuring electrical characteristics on the molecular level using conventional AFM probe tips and claims a method and system having a large contact area probe tip to overcome such problems.

Applicant's claimed large contact probe tip is not disclosed in the cited and relied upon Lindsay reference. In contrast to Applicant's claim 1 (and 8), the method and apparatus disclosed in Lindsay uses scanning probe microscope techniques for high resolution mapping of chemical compositions, wherein the cantilever is of the conventional type (i.e., small radius/contact area tip). In fact, Lindsay discloses uses a conventional, commercially available force sensing cantilever at col. 5, line 24-27 wherein a commercial supplier of such cantilevers is disclosed. At no point in its disclosure does Linday disclose using any type of probe tip other than the conventional (i.e., small radius/contact area) tip. Neither Fig. 5 nor the discussion thereof disclose the Lindsay tip 23 as having "a large contact area".

Thus, it is clear that Lindsay does not disclose, at least, Applicant's claimed cantilever including a large contact area probe tip. Accordingly, reconsideration and withdrawal of the 35 USC 102(a) rejection are requested, as well as the allowance of claims 1 and 8.

Regarding the 35 USC 102(a) rejection of claims 2 and 9, it is respectfully submitted that Lindsay does not disclose a large radius sphere as defined by Applicant's claims and specification. The 10 nm diameter tip as disclosed in Lindsay and relied upon by the Office is a conventionally sized probe. As discussed above, Lindsay uses a conventional (i.e., known, small contact area/radius probe) tip whereas Applicant claims a large contact area probe tip. Examples of the substantial differences between the Lindsay probe tip and Applicant's large contact area probe tip are supported by Applicant's specification at least at page 8, line 22-23 wherein it is stated that "[S]pheres suitable for use include both glass and polymer spheres with radii from a few tens of nanometers to a few tens of microns or even larger." Clearly,

a "large" probe tip as consistently used and claimed by Applicant is not disclosed by Lindsay.

Accordingly, it is respectfully submitted that for at least the reasons stated above, the cited and relied upon Lindsay reference fails to anticipate claims 2 and 9. Reconsideration and withdrawal of the rejection are requested, and the allowance of claim s 2 and 9.

Claims 3-7 and 10-15 depend from claims 1 and 8, respectively. For at least the reasons stated above regarding the rejection of claims 1 and 8, it is respectfully submitted that claims 3-7 and 10-15 are not anticipated by Lindsay. Accordingly, it is respectfully submitted that the cited and relied upon Lindsay reference fails to anticipate claims 3-7 and 10-15. Reconsideration and withdrawal of the rejection are requested, as is the allowance of claims 3-7 and 10-15.

Thus, it is respectfully submitted that all of claims 1 to 15 are in a condition for allowance, and allowance of claims 1-15 is earnestly solicited.

Accordingly, it is respectfully requested that the above-noted amendments be entered in the present patent application.

Attached hereto is a marked-up version of the changes made to the claims by current amendment. The attached page is captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE**".

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification

Please amend the abstract as follows:

~~The present invention provides a~~ A method and system for measuring an electrical characteristic on a molecular scale including the steps of probing a molecular layer or structure of interest using an atomic force microscopsy (AFM) cantilever having a large contact area probe tip wherein the force applied to the probe tip is controlled and, in response to the probing, at least one electrical characteristic of the molecular layer is detected.